

Public Utility Model Revisited

Part 1 – Origins

Ten years ago, in the basement of offices of the University of Oklahoma's Center for Economic and Management Research (CEMR), a group of economists and organizational scientists met to share their respective findings regarding the underlying economic nature of the prehospital care industry. Working with CEMR under an appointment as Research Fellow, I had the honor of heading that multi-disciplinary research team in an effort to find out why some EMS systems were capable of delivering so much more performance and efficiency than the rest.

Before accepting the research position at CEMR, I had been a system analyst and later director of one of the five original national EMS demonstration projects – the Arkansas project. As director, I had the opportunity to see firsthand most of the best known EMS systems of that day, and to meet and get to know many of the people who were responsible for their development.

I remember being asked to speak at the first national EMS conference in Chicago. All five of the demonstration project directors were to speak, and I was scheduled (set up) to follow Jacksonville, Florida's Captain John Waters. When Captain Waters finished, the audience of about 800 folks was rolling in the aisles from his truly professional comic delivery. Waters' famous dual slide show presentation had convinced even me that death was a thing of the past in Jacksonville. Watching Captain Waters, I felt sorry for other department heads who had to compete with him for a share of the Jacksonville city budget.

Jack Stout, chairman of The Fourth Party, has been at the forefront of innovation in the design and implementation of EMS systems for the past dozen years.

If you have a question, a problem or a solution related to the public/private interface in prehospital care, address your letter to "Interface," Jems, P.O. Box 1026, Solana Beach, CA 92075.

All of us at Chicago had been asked to spill our guts about what was wrong in our projects. Both Dr. Sylvia Micik and I fell for it and actually told the whole truth. I don't remember Dr. Micik's confessions, but among mine was admission of a growing feeling on my



Something was missing.

part that there was something very, very wrong in the way we were looking at the prehospital care industry – all of us. While we had made great progress in Arkansas without resorting to socialized EMS, I was dissatisfied with the prospects for continued progress.

I admitted that given plenty of money, Captain Waters' brand of socialized EMS could produce impressive results. But I suggested that, under the right conditions, the private sector could turn that same money into even more impressive results, or could produce the same results with less money, whichever public policy might prefer. But I had to acknowledge the dismal track record of the private ambulance industry, and I had to admit that in spite of our pro-

gress, we hadn't found the formula in Arkansas. Something was missing.

A Fresh Look

In the early 1970s, the folks at CEMR had been heavily involved in energy-related research work. I liked the idea of applying CEMR's considerable expertise in economics and organizational science to a fresh examination of the prehospital care industry. The Kerr Foundation liked the idea, too, and furnished funding. Thus, the team was not under the influence of the federal funding sources which seemed increasingly devoted to promoting socialized EMS systems.

We had the right team – eight members with doctoral level credentials in economics, organizational psychology, operations research, finance and accounting. The team organized itself to complete an extensive preliminary review of the literature, and then to conduct several sight visits, especially to systems which had managed to establish a national reputation for excellence, but without resorting to socialization, federal funding or local tax support.

Each team member conducted his own investigation from the point of view of his own academic specialty. Gradually, a new and clearer picture began to take shape, changing forever my understanding of the prehospital care industry, yet at the same time exposing new complications and new sources of frustration.

Peak-Load Production Problems

By analyzing demand data from several large communities where complete emergency and nonemergency demand data was available, the team learned that the ambulance industry and the electric power industry have something in common – serious peak load production problems. The team also learned that the range of normal demand level fluctuation was greatest during times when average demand levels were at their highest. In larger populations,

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these peak-loading patterns were somewhat predictable, with each city having its own time-of-day/day-of-week and seasonal patterns. This meant that the "system" must somehow finance sufficient production capacity to handle not only *average* peak-load demands, but must also be able to handle the fluctuations in peak-load demand.

Emergency Victims Make Poor Shoppers

For the "invisible hand" of micro-economics to work effectively, the "consumer" must have motive, opportunity and ability to quality/price shop for goods or services. For obvious reasons, the emergency victim makes a poor shopper, and with the advent of 9-1-1 systems, the vendor selection process is largely in the hands of local government. While a few consumers may plan ahead for their emergency ambulance needs, their numbers are

insufficient to provide a financial base to finance peak-load production levels.

Powerful Economies of Scale Exist

The team found that even 10 years ago the ambulance industry had grown so financially, clinically and technologically complex that the "average cost curve," to use the economist's terminology, would continue to decline as the firm's production volumes increased, leveling off at an exclusive service population (emergency and nonemergency) of about one million people. That is, any ambulance company exclusively serving a population of less than a million could become more efficient by serving a larger population.

These economies of scale were found to be the result of two factors: first, fixed costs would grow more slowly than the increase in both run volumes and unit-hour production (i.e. lower average cost per unit hour) and, second, a system using more unit hours could safely achieve a higher unit-hour utilization ratio (i.e. the ratio of patient transports

to unit hours produced) without jeopardizing response-time performance. (Interestingly, this little understood fact had been reported in a study by Dunlap and Associates in the mid-1960s.)

Thus, a large service population would mean the ability to produce unit hours of coverage at lower cost per unit hour, and the unit hours produced could be utilized more efficiently by increasing the average number of transports per unit hour without hurting response-time performance.

Primary Firm Vulnerable to Cream Skimmers

The team found that any primary emergency provider trying to finance peak-load coverage levels on a fee-for-service basis is extremely vulnerable to financial destruction by "cream skimmer" competition. Cream skimmers based outside the market can render services on an elective basis while incurring only marginal production costs (e.g. fuel and supplies). Competitors based within the market but having no responsibility for maintaining peak-load coverage can avoid the cost of maintaining coverage, focus their attention upon marketing and collections, skimming off virtually all of the primary provider's profits and even making it impossible for the primary provider to continue to finance necessary unit-hour coverage.

But there was more to this vulnerability than simple cream skimming, and recent experience in the team's own back yard told the rest of the story. In both Oklahoma City and nearby Ft. Smith, Arkansas, low quality providers had repeatedly financially destroyed more patient-oriented providers by a simple technique that is widely known throughout the industry. Cream skimmers learned to refer uncollectable business to their more scrupulous competitors, who would not only lose money running the referred calls, but would often lose paying runs to the cream skimmers by being busy running the "referred" calls.

There are, of course, a thousand ways to refer unwanted business to a patient-oriented competitor. By being slow to respond or rude to patients and families in selected neighborhoods, it is possible to "teach" local residents to call someone else. Simply being busy, broken down, or out of service at convenient times will also do the job.

In such situations, even the most dedicated private providers must either seek a subsidy to replace revenues skimmed off by others, or must learn to beat the cream skimmers at their own game, balancing the desire to serve the community against the realities of per-



Emergency Victims Make Poor Shoppers

fectly legal cream-skimming competition.

Geographic Market Definition

In most industries, the customer base of a firm may be scattered geographically without impairing service delivery or financial stability. For example, a hospital which requires a customer base of 300,000 people to maintain financial stability can draw its patients from throughout a metropolitan area of several million people, just so long as 300,000 of those several million people think of this hospital as "their hospital." The same could be said of health spas, furniture stores and most other businesses.

But if an ambulance company is to assume *primary* responsibility for serving 300,000 people, with good clinical and response-time results, it is necessary that those 300,000 people are not scattered among a larger population. Medical and transportation services are provided to *individuals*, but coverage (essential to response-time performance) must be furnished to a *geographic area*. To furnish clinically sound ambulance services with reliable response times and reasonable efficiency, two initial conditions must be met. First, a sufficient population (customer) base must exist to allow reasonable economies of scale and to finance unit hours for coverage. Second, that customer base must be sufficiently concentrated geographically to allow coverage to be maintained with the unit hours available.

The presence of multiple competing providers even in a heavily populated area may allow each provider an adequate customer base, but if each provider's customers are scattered among the rest, no provider can maintain coverage. The customer base must be *geographically defined* in a way that retail competition cannot reliably achieve.

Financial Incentives

The team also examined the financial incentives inherent in the conventional retail ambulance business, again looking for clues to explain the performance failure of the private ambulance industry. They found that in a multiple provider system depending upon retail competition, the financial incentive is to hold costs to a minimum while maximizing volumes of *paying* transports and concentrating on collections. The highest profits could be achieved by avoiding the business which would create losses from uncollectibles, holding costs of coverage to a minimum, squeezing out the highest possible unit-hour utilization ratios without regard to

response-time results, keeping employee turnover high so that most of the work force stays at starting pay levels, and putting the company's best minds to work on collections and marketing.

In short, the team learned that there is absolutely no reason to believe that retail competition among multiple providers would ever produce clinically sound service with good response-time performance at the lowest possible cost. But while competition at the retail level was clearly useless and even damaging in the micro-economic sense, the team began to wonder if a different form of competition and a radically restructured business arrangement could be devised to restore effective competition and productive private sector participation.

A Natural Monopoly

As the team members sat down to pool their findings and impressions, Dr. Donald Murray sat in. Dr. Murray was then director of CEMR and a utility economist with a well established reputation in his field. He had been sitting in on most of the team's meetings and was familiar with our work. At the end of the meeting, he commented in the under-

stated way which was his style, "It looks as though the ambulance industry exhibits all the classic characteristics of an economic natural monopoly."

And so it does, with one important exception. Technically, a natural monopoly industry is one that, left alone, tends to monopolize itself, mainly because of economies of scale that make a single firm far more efficient than any combination of multiple firms.

Left alone, ambulance service markets don't generally tend to monopolize themselves, though a few have. Rather, ambulance markets left alone seem to stagnate clinically and technologically, dominated by a few small firms that either work out non-competitive "arrangements" behind the scenes, giving the public the illusion of competition, or they actually compete to create an unstable succession of start-ups, buy-outs, mergers and bankruptcies.

Put another way, retail competition in the ambulance industry does not tend toward visible monopolization, nor does it tend to generate higher quality services at lower consumer prices. It tends instead to prevent the evolution of high performance private services, to estab-

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lish incentives for cream-skimming operations, and to promote and justify socialization of the emergency portion of the industry.

On the other hand, the industry tends to monopolize itself in the classic way when a community demands higher performance service from the private sector, and somehow prohibits or effectively discourages cream-skimming operations. Obviously, if a provider is responsible for both coverage and service to a geographically defined population, then that provider must have an effective monopoly in that area, or be subsidized to replace revenues lost to cream skimmers.

The Basic Purposes

The three-part *jems* series on the public utility model (May, June, July 1980) described the basic system design of the public utility model. Since that writing, pure public utility model systems have been installed in four cities, several lawsuits have tested various aspects of the model's legality, the legal structure and procurement process has been modified

and improved by several revisions, several cities have implemented variations on the theme and several have tried and failed to achieve implementation. One system has been installed without any local tax subsidy, another has weaned itself from local tax support on schedule, and a truly amazing amount of misinformation about the model has been generated and widely shared.

To better understand the model, one must first understand its purposes. The public utility model (and its later refinements) was developed to accomplish the following major purposes, and in the following order of importance.

1. *Patient Care.* The model's highest priority is to deliver continuously upgraded clinical performance at the industry's highest levels, with clinically sound and fully reliable response-time performance, while eliminating the risks (medical and legal) of call screening, transport refusals and patient hand-offs to BLS crews. This purpose is so central to the model that, in every implementation process to date, opponents have argued that the standards of care were too stringent, the equipment too "gold plated," and that "the system was a Cadillac while the community really just

needed a Chevy."

2. *Financial Stability.* The model's second purpose is to simultaneously achieve such a level of production efficiency and such diversified and flexible income sources that the desired levels of patient care can be maintained regardless of fluctuations in the local economy, changes in third-party reimbursement practices, or other financial uncertainties which might otherwise threaten the very existence of the system or its ability to maintain quality of service. (It is not a purpose of the model to save local tax dollars, though that is a widely held misconception. Instead, the model is designed to be capable of maintaining service with or without local tax support. Such stability makes the end of local subsidy feasible but this is a side effect — the purpose is stability.)

3. *Professional Work Environment.* The model is designed to provide the most professional work environment for field personnel. A direct legal relationship between field personnel and regulating emergency physicians, state-of-the-art equipment, the highest clinical standards, stringent licensing requirements and complete freedom from involvement in billing and collections form the core of the various features that promote a more professional work environment. (The price of this environment is a demanding workload, the highest expectations of professional conduct, demanding in-service and recertification requirements, and, usually, medium compensation levels.)

4. *Restore Competition.* The model is designed to create a highly demanding yet equally desirable business opportunity attractive to qualified firms and frightening or even undesirable to the others. The model is based upon the assumption that no organization has an inherent right to exist or to serve, and that the right to such a responsible and desirable business opportunity should be earned initially through competition, and as appropriate, periodically thereafter.

5. *Value.* The model is designed to prevent compromising the quality of patient care under all but the most extreme financial situations. However, the model is also designed to make certain that both taxpayers and ratepayers are getting full value for their money. Smokescreen phrases such as "What's a life worth?" so often used to justify excessive costs in inefficient systems, have no place in a public utility model system. As Alan Jameson has said, even an idiot with enough money can produce results. The public utility model demands both high performance and efficiency, no excuses.

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There isn't space here to discuss the details, but the team also took a look at the various alternative systems designs that were fast becoming popular, in light of these new economic understandings. Central dispatching of multiple providers, call rotation, mini-monopoly districting, non-transporting government rescue squads with private transport services, transporting government services with multiple private nonemergency firms . . . were all considered. Each of these designs fails in some important way to cope fully with the underlying economic realities of pre-hospital care. In every case, these designs attempt to make a fundamentally bad idea workable – they attempt to preserve the multiple provider system in a natural monopoly industry.

Toward the end of our team's work, the city of Oklahoma City began to consider options for trading in its deadly conventional multiple provider system for something capable of saving lives.

Next came contact with physicians and business leaders in and around Beaumont, Texas. I had left the University of Oklahoma to return to my consulting business, promising my family that I would abandon forever the world of EMS. But after several telephone conversations with Dr. Glen

Despite strong support from the medical community, the strength and ugliness of the controversy, the experimental nature of the project and the radical changes involved all combined to narrowly defeat implementation in Beaumont. Licking my wounds and feeling that I had failed my new friends in Beaumont (a feeling that stays with me to this day), I returned to my previous work, vowing once again to leave EMS alone.

At that time, the city had been served by a private ambulance monopoly for 10 years. The company's clinical reputation was good, but city officials were unhappy with the lack of financial and response-time accountability. The com-

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pany had gradually increased its subsidy requirements to nearly \$400,000 annually, and city officials weren't sure what they were getting for their money. I figured the existing operator would bid the new system, and with the advantages of an incumbent operator, had a good chance of winning the first three-year contract.

We scaled down the county plan to fit the city, revised the financial projections, and presented the deal to the city commission. With strong support from Norma Eagleton, then commissioner of finance and revenue, the plan was passed by the city commission and the long and complex implementation process began. Few individuals get an opportunity to test such a radical system design, largely without compromise, in a real-world setting. I believed in the design and I could not resist.

As implementation progressed, the opposition from the incumbent operator began to surface. Then, local elections in which a four-to-one political majority was replaced by a four-to-one majority controlled by the other party. The only official to survive from the previous majority party was Commissioner Eagleton who won her position

with nearly 90 percent of the vote. To the new mayor and his party, Commissioner Eagleton posed a serious threat in future election battles. Backed by a four-to-one majority advantage, the mayor set out to kill Eagleton's controversial and highly publicized EMS program, before it could prove successful. Failing to abort the system before its birth, the mayor carried on for two terms of office a relentless effort to destroy the new system in its infancy.

The incumbent operator was going to sue. The new mayor said no one would bid and that no bank would finance the needed equipment. The mayor "accused" me of being responsible for the Oklahoma City system, in spite of a letter from Jeff Gauthier, director of that system, explaining that I had never been involved with the design or implementation of that system. A war was on to prevent the system from becoming operational, and the "bad guys" had us outnumbered four to one on the city commission.

By a three-to-two vote, we were allowed implementation. But the mayor did his best to discredit the project, to discourage potential bidders and to hurt our chances of securing the essential

commercial financing. But because of Commissioner Eagleton's willingness to risk her political career, and the persistence and understanding of a handful of local physicians, community leaders, and city staffers willing to risk their jobs, the Tulsa system went operational at midnight October 1, 1978.

The Acid Test

It's like raising a child. You can do your best during the formative stages, but there comes a time when you must step back and let the chips fall where they may. There are bound to be problems, but if the design is really sound, the system should correct itself. It's been almost seven years since the first public utility model system "went up" and long-term trends should now begin to show.

Next month we'll detail the track record of the Tulsa EMS system, and we'll discuss some of the changes we have made in the public utility model design as a result of Tulsa's experience and the experience of younger public utility model systems. Finally, we'll discuss how the model has had both good and bad effects upon the entire ambulance industry, and why I hope it will someday be obsolete. □

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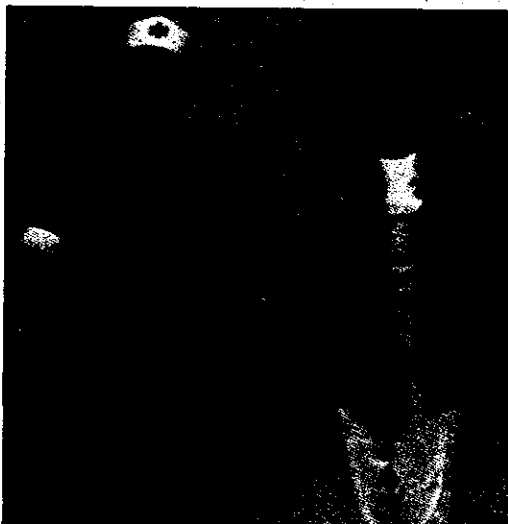
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